River Allen – High Hall

An Advisory visit by the Wild Trout Trust – April 2012

1. Introduction

This report is the output of a Wild Trout Trust visit undertaken on the River Allen at High Hall NGR SU 007029 to ST 999015. The visit was requested by Marcus McCorkell, who is an experienced river keeper and guide and manages the fishery on behalf of the owner and fishing syndicate members. A key concern has been the recent loss of water crowfoot *Ranunculus spp* from long sections of the beat.

This section of the River Allen is classified as being in Good Ecological Condition under the Water Framework Directive and is identified in the Environment Agency's River Basin District plan as water body ID no. GB108043011090.

Comments in this report are based on observations on the day of the site visit and discussions with Marcus McCorkell and Neil Lloyd.

Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left Bank (LB) or Right Bank (RB) whilst looking downstream.

2. Catchment and fishery Overview

The Allen is a delightful chalkstream that rises as a winterbourne near Monkton Up Wimborne in Dorset and flows south for approximately 16 km before joining the larger River Stour in Wimborne Minster. The name Wimborne is derived from "twin-bournes" with the oldest parts of the town located on land situated between the confluence of the Stour and the Allen.

The River Allen is a Wessex chalk stream 'gem' and has a reputation as an excellent fishery supporting good stocks of wild brown trout *Salmo trutta.* The river also supports grayling *Thymallus thymallus* and indigenous stocks of coarse fish. As recently as 1973 the river was also considered to be an important salmon *Salmo salar* spawning stream with good numbers of fish running up as far as Witchampton Mill. Since then, salmon stocks on the Stour have largely collapsed.

Long reaches of the Allen have been historically modified to facilitate milling and agricultural irrigation. A slow but steady increase in the amount of nutrient-rich sediment entering the system has led to subtle changes in plant communities, particularly the prevalence of pipe reed, or common club rush, *Schoenoplectus lacustris.*

A key factor to consider when discussing options for maintenance and enhancement is the presence of white-clawed crayfish, *Austropotamobius pallipes*, which still thrives in the Allen. The crayfish is a protected species under Annex II of the European Habitats Directive. This species is under huge threat nationally and the Allen population represents one of the very few that still exists in the south of England. This section of river is also likely to support bullhead *Cottus gobio* and brook lamprey *Lampetra planeri*, two species also protected under Annex II.

The fishery at High Hall amounts to approximately 2km of mainly double bank trout and grayling fishing. There is no stocking with farmed fish and rods are let to a small syndicate of wild trout enthusiasts. Fishing pressure is light and managed on a mainly catch and release basis.

3. Habitat assessment

The fishery at High Hall supports a wide range of habitats suitable for all life stages of trout and grayling. The Allen here is blessed with a relatively steep gradient, which promotes brisk water velocities flowing over varied bed topography of pool, riffle and glide habitat (photo 1). This classic flow regime provides the High Hall syndicate with a superb base to further develop and enhance the wild trout fishery.

Photo 1. Pool, glide and riffle. Good adult holding and potentially good spawning and nursery habitat

First impressions of the beat were of a river that has been sensitively managed and maintained and one which has all the necessary ingredients for sustaining a first class trout fishery. A stark and obvious exception is the comparative lack of significant amounts of in-channel cover, in part due to the poor growth of water crowfoot *Ranunculus spp.*, which have largely failed to grow this year.

Some attempts to plant new beds have been made recently by the syndicate. There is also evidence that the crowfoot is still present in many areas (photo 2) but is being severely grazed off, presumably by the swan population. This is

thought to be a small resident community rather than a large accumulation of adolescent birds. Large densities of immature swans are known to have the capacity to decimate crowfoot beds on many river systems. The issue of poor crowfoot growth is not restricted to the Dorset Allen and the long period of below average flow is thought to be strongly linked with poor crowfoot growth across many chalk river catchments this year. This issue is discussed further in the recommendations section of this report.

Photo 2. Some grazed-off beds of crowfoot present on what should be superb parr habitat. Decent sized strips of scrubby cover line the bank in many areas.

Bankside river margins were generally well managed, with a thick and luxuriant strip of classic chalkstream emergent plants and assorted herbs. At the time of the site visit, the new season's growth was just starting to push through. The High Hall syndicate have left last season's dead annual plants to flop into the margins, particularly adjacent to shallow riffle habitat. This is a good example of best practice and critically important for over-wintering juvenile trout.

In many areas, the bed topography is surprisingly varied for a chalk river. Some sections of flat shallow glide (photo 3) would benefit from even more variation in bed shape, to provide improved opportunities for both spawning and juvenile trout cover. The provision of the odd piece of secured Large Woody Debris (LWD) onto this shallow glide habitat will help to scour and sort bed material and provide improved habitat for all trout life stages.

Photo 3. Flat, shallow glide habitat with poorly sorted bed gravel heavily infiltrated with fine sediments.

Recruitment in the trout population on many chalk rivers is often severely compromised by the nature of local spawning gravels. The Allen appears to regularly produce reasonable numbers of wild trout, which in part is probably associated with the favourable morphology of the channel, particularly on this section. The gravels in many areas are, however, poorly sorted and are likely to be glued together in some areas. This is a natural process in chalk streams resulting from calcium carbonate precipitate. When a hard surface crust forms on a pool tail it is very difficult for trout, or even salmon to break up the surface during spawning. Ensuring that likely spawning sites are in good shape prior to spawning in November is very important. Installing LWD flow deflectors, combined with breaking the surface crust with fencing spikes, rakes or modified pressure pumps prior to spawning will help to boost spawning success and the subsequent conversion of more trout eggs to fry.

Some good examples of habitat combinations were noted, where good quality spawning sites were located adjacent to well covered margins. Habitat works best when it is closely linked with favourable sites for the next life stage and photo 4 is a good example.

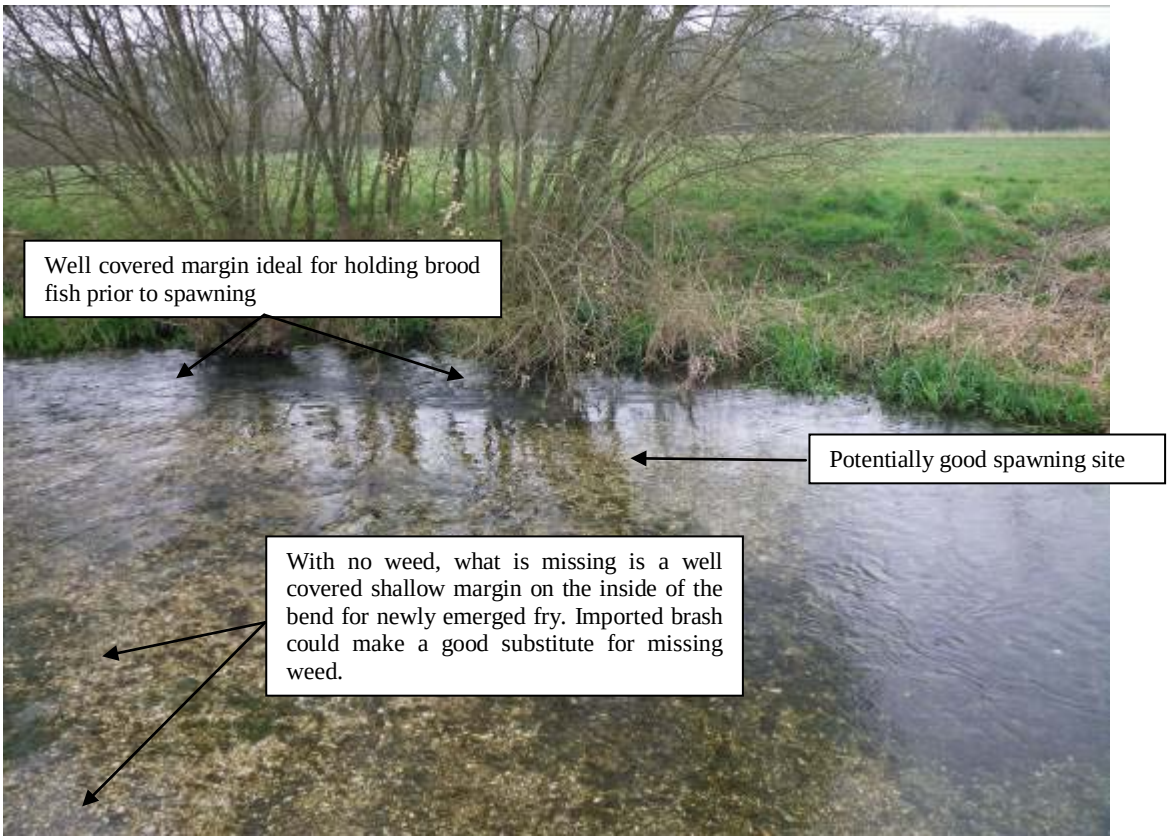

Photo 4. Potentially a good spawning site adjacent to a well covered shallow margin – good cover for pre-spawners.

4. Conclusions

A key habitat bottleneck on this section of the Allen is the lack of good quality cover for juvenile trout. This issue is obviously compounded in a year when crowfoot growth is poor. The flat nature of the bed in many areas and the lack of any sorting of river bed material also compromises the reach as a high quality spawning site and restricts the holding capacity of the reach for larger brood fish.

Improvements could be achieved through the introduction of large woody debris (LWD) flow deflectors (diagram 1). These flow deflectors can be configured to encourage a range of natural river processes, from eroding and scouring bed material to encouraging deposition in vulnerable river margins. Great care must be taken to ensure that any planned works do not pose an enhanced risk of flooding. Deflectors must be configured in a way that does not adversely impact on flood conveyance, or pose a risk from structures breaking away and causing a blockage against downstream bridges or weirs. In a chalkstream environment, these deflectors may also catch drifting weed, which can pose a maintenance problem. On the plus side, woody debris, or even a simple driven post can sometimes catch weed and promote rooting and the establishment of new weed beds. This is an option certainly worth considering, given the comparative lack of submerged weed growth that currently exists.

Formal Land Drainage Consent is required when undertaking river works and an early consultation with the Environment Agency is recommended.

The introduction of small (less than 2m) long LWD flow deflectors is unlikely to exacerbate flood risk and it is recommended that deflectors are installed in the centre of the channel to promote much needed scouring of the river bed. It is highly likely that the bed gravels are compacted and the crust cemented with calcium carbonate deposits. Once installed, the riverbed gravels immediately below and to the sides of the deflectors should be broken up with a large fencing spike (photo 7). This will allow the soft bed material to be blown away and the gravels to be graded by the river, creating pots to hold fish and clean gravel ramps for spawning. The LWD deflectors also provide ideal cover for crayfish.

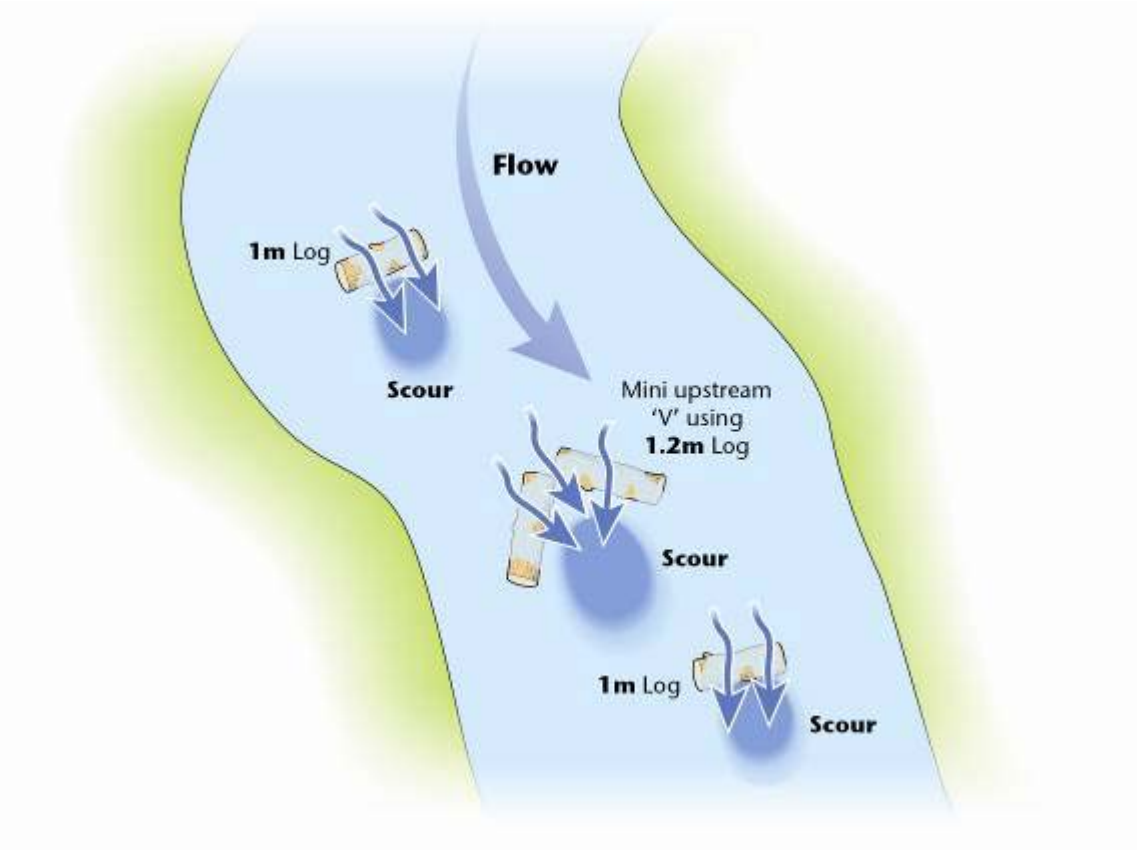

Diagram 1

Bed scour will always take place at right angles to the deflector so care should be taken to ensure that they are not configured in a way that puts pressure on the bank. The flow deflectors can be secured with chestnut stakes and wire, or they can be drilled out with an auger and nailed to the bed with sections of steel reinforcing bar (photos 5 & 6). It is important to ensure that there are no service pipes or cables running beneath the riverbed before driving any stakes into the riverbed.

Photo 5

Photo 6

Photo 7

Improved cover in the shallow margins can be achieved by pegging in brash bundles (photo 8), or creating ‘tree sweepers’ by laying in small trees such as thorns and securing the trunks to either a live tree stump, or to a driven stake (photo 9). The idea is to provide a scrubby matrix of cover where small fish will feel comfortable and be safe from predators such as herons.

Additional cover for crayfish and juvenile trout can be achieved by dotting some larger flints into shallow fast flowing sections (photo 10).

Photo 8

Photo 9

Photo 10

Low over-hanging cover can be encouraged by planting one or two sallow whips at 45° to the water level. The whips should be pushed into the margins a little above normal winter water levels. Although these trees will require on-going maintenance, they do not grow too large and provide ideal low level cover for a range of fish species. A mature sallow is shown in photo 11.

Photo 11

Keeping control of the emergent reed growth, particularly the club rush, is advisable. Emergent reeds growing out from the margins are excellent habitat and provide effective bank defences. However, action should be considered when the river becomes choked with reeds across the full width of the channel. In such cases it is possible for the sections upstream of the reed growth to become impounded and silted, leading to the plants colonising areas that were previously shallow runs supporting submerged plant communities which provide high quality trout habitat.

5. Recommendations

- Provide improved cover in shallow margins with brash bundles or tree sweepers contructed from brashy trees cabled to a live trunk or stake. This is particulalry important during the winter and periods of poor weed growth.

- Intoduce some large flints or locally sourced stones in fast shallow sections to create lies for small fish and habitat for crayfish.

- Plant overhanging sallows or thorns to promote marginal cover in some of the more open sections.

- Break up the crust of gravels in areas on the tail of glides rising up between pool and riffle habitat.

- Secure LWD flow deflectors to shallow glides where the bed is currently flat and the gravels unsorted.

- Monitor the success and growth of club rush beds and intervene when plants begin to choke the channel.

Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.

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